



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/973,240 | 10/09/2001 | Bharath Rangarajan | E0808 | 5360 |

23623 7590 06/29/2004

AMIN & TUROCY, LLP
1900 EAST 9TH STREET, NATIONAL CITY CENTER
24TH FLOOR,
CLEVELAND, OH 44114

EXAMINER

MACARTHUR, SYLVIA

ART UNIT PAPER NUMBER

1763

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/973,240 | RANGARAJAN ET AL. | |
| | Examiner | Art Unit | |
| | Sylvia R MacArthur | 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/13/02, 5/10/02</u> . | 6) <input checked="" type="checkbox"/> Other: <u>restriction/election</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Auda et al (US 5,223,914).

Regarding claim 21: Auda et al teaches a follow-up system for an etch process wherein a chamber is provided for patterning a first coating comprising a resist (see col. 2 lines 36), a first dispenser deposits a second coating col. 2 line 37 and 38), a second dispenser deposits a developer to form a negative resist, (col. 2 lines 44-47) a measuring system 32 measuring an operating parameter, and a processor (computer 34) is coupled to the measuring system, see col. 2 lines 32-col. 3 line 25.

Regarding claim 22: The measuring system comprises an ellipsometer see col.7 lines 28-31 and a spectrometer 32.

Regarding claim 23: Computer 34 receives data and the data is inherently stored or processed in a memory.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1763

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auda et al in view of Kamon (US 6,737,198).

The teachings of Auda were discussed above.

Auda failed to teach a CMP apparatus.

Kamon teaches performing CMP in a photomask fabrication method.

Kamon cites that the motivation to introduce a MP apparatus in the apparatus of Auda is to form a shade pattern.

The CMP apparatus is also a well known suitable means of smoothing and planarizing the surface of a substrate

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Auda et al to provide a CMP apparatus and ensure the surface of the resulting substrate is smoothed after the depositing and developing of the layers of the substrate.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auda et al in view of Suzuki (US 6,492,068).

The teachings of Auda were discussed above.

Auda fails to teach trim etching.

Suzuki teaches an etching method for the production of semiconductor devices.

Suzuki teaches that trim-etching is used to adjust or control the pattern dimensions, see col. 14 lines 52-55.

Art Unit: 1763


Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide an apparatus to trim-etch the substrate produced by the apparatus in order to produce the desired dimensions in the substrate.

Regarding claim 26: The teachings of Auda modified by Suzuki teach the apparatus that is capable of performing the function discussed. These are process limitations and not given patentable weight.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sylvia R MacArthur
Patent Examiner
Art Unit 1763

June 24, 2004

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35

U.S.C. 121:

- I. Claims 1-20, drawn to process of processing a substrate, classified in class 430, subclass 322.
- II. Claims 21-26, drawn to an apparatus for dispensing resist, classified in class 118, subclass 663.

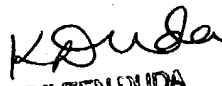
The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be made by another and materially different apparatus such as an apparatus without the monitoring since the process does not recite monitoring steps.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized

divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Gregory Turocy on February 6, 2003, a provisional election was made with traverse to prosecute the invention of Group II, claims 21-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).


KATHLEEN DUDA
PRIMARY EXAMINER